

CLAIMS

- 1
2 1. An isolated nucleic acid sequence which
3 comprises a sequence selected from the group
4 consisting of: Sequence ID No.1, Sequence ID No.2,
5 and Sequence ID No 3.
6
- 7 2. An isolated nucleic acid sequence according to
8 Claim 1 in which the nucleic acid sequence is a DNA
9 sequence.
10
- 11 3. An isolated nucleic acid sequence according to
12 Claim 1 or 2 in which the isolated nucleic acid
13 sequence consists of a sequence selected from the
14 group consisting of: Sequence ID No.1, Sequence ID
15 No.2, and Sequence ID No.3.
16
- 17 4. An isolated protein encoded by a nucleic acid
18 sequences according to any of Claims 1 to 3.
19
- 20 5. An isolated protein according to Claim 4 in
21 which the protein is a cell surface glycoprotein.
22
- 23 6. An isolated protein as claimed in Claim 4 or 5
24 which is an oncofetal protein expressed by an
25 astrocytoma cell.
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- 27 7. An isolated protein as claimed in any of

1 Claims 4 to 6 having a molecular weight of
2 approximately 200kda.

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4 8. An antibody which binds specifically to the
5 protein of any of claims 4 to 7, and any other
6 antibody that competes directly or by steric
7 hindrance therewith for said protein.

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9 9. An antibody as claimed in Claim 8 which is a
10 monoclonal antibody.

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12 10. An antibody as claimed in Claim 8 or 9 which
13 is a class M immunoglobulin with a kappa-light
14 chain.

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16 11. A fragment of the antibody of any of Claims 8
17 to 11, which fragment binds specifically to the
18 protein of the invention.

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20 12. A method of producing an antibody to a
21 protein comprising:

22 - innoculating an animal with a protein according
23 to any of Claims 4 to 7, wherein the protein
24 elicits an immune response in the animal to
25 produce the antibody; and

26

27 - isolating the antibody from the animal.

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29 13. A method of producing an antibody as claimed
30 in Claim 11 in which the animal is innoculated with
31 G-CCM cells of ECACC deposit No. 86022702.

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1 14. A method for producing a hybridoma, comprising
2 the step of innoculating a suitable subject with a
3 protein according to any of Claims 4 to 7, or an
4 antigenic fragment thereof, and fusing cells from
5 the subject with a myeloma cell to produce the
6 hybridoma.

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8 15. A method according to Claim 14 in which the
9 subject is innoculated with G-CCM cells of ECACC
10 deposit No. 86022702.

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12 16. A hybridoma cell obtainable according to the
13 method of Claims 14 or 15.

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15 17. A hybridoma cell of, or derived from, ECACC
16 Deposit No. 03073001.

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18 18. A monoclonal antibody obtainable from a
19 hybridoma cell of, or derived from, ECACC Deposit
20 No. 03073001.

21
22 19. A method of detecting an astrocytoma cell in a
23 sample of human cells, which method comprises the
24 step of contacting the cell sample with an antibody
25 according to any of Claims 8 to 10, or 18, or a
26 fragment thereof, and detecting those cells which
27 have bound the antibody or fragment, wherein binding
28 of the antibody or the fragment to a cell is
29 indicative of an astrocytoma cell.

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31 20. A method as claimed in Claim 19 in which the
32 antibody is a monoclonal antibody.

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2 21. A method of detecting a primary breast
3 carcinoma cell in a sample of human cells, which
4 method comprises the step of contacting the cell
5 sample with an antibody according to any of Claims 8
6 to 10, or 18, or a fragment thereof, and detecting
7 those cells which have bound the antibody or
8 fragment, wherein binding of the antibody or the
9 fragment to a cell is indicative of a primary breast
10 carcinoma cell.

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12 22. A method according to Claim 21 in which the
13 antibody is a monoclonal antibody.

14
15 23. A diagnostic kit for diagnosing the presence
16 of a cell selected from the group consisting of:
17 astrocytoma cells; malignant melanoma secondary
18 tumour cells; and primary breast carcinoma cells,
19 the kit comprising a (primary) antibody according to
20 any of Claims 8 to 10, or 18, or a fragment thereof.

21
22 24. A diagnostic kit as claimed in Claim 23 in
23 which the antibody comprises a detectable label.

24
25 25. A diagnostic kit as claimed in Claim 23 in
26 which the kit comprises a secondary antibody which
27 specifically binds the (primary) antibody, which
28 secondary antibody comprises a detectable label.

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30 26. A biological targeting device comprising an
31 antibody according to any of Claim 8 to 10, or 18,
32 or a fragment thereof, and a therapeutic ligand.

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2 27. A therapeutic antibody comprising an antibody
3 according to any of Claims 8 to 10, or 18, or a
4 fragment thereof.

5

6 28. A method of treating cancer in an individual
7 by inducing apoptosis in cells in the individual
8 which express an MQ1 protein, which method comprises
9 a step of treating an individual with an antibody of
10 any of Claims 8 to 10, or 18, or a fragment thereof.

11

12 29. A method according to Claim 28 in which the
13 cancer is selected from the group consisting of:
14 malignant astrocytomas ; malignant melanoma
15 secondary tumours; and primary breast carcinomas.

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17 30. A method according to Claim 28 or 29 in which
18 the antibody is a monoclonal antibody.

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20 31. A method as claimed in any of Claims 28 to 30
21 in which the antibody is humanised.

22

23 32. A polynucleotide which is anti-sense to an
24 isolated nucleic acid sequence of any of Claims 1 to
25 3.

26

27 33. An anti-sense polynucleotide as claimed in
28 Claim 32 comprising the sequence of Sequence ID No.
29 4.

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31 34. An anti-sense polynucleotide as claimed in
32 Claim 32 consisting of the sequence of Sequence ID

1 No. 4.

2

3 35. A method of treating cancer in an individual
4 by inducing apoptosis in cells in the individual
5 which express an MQ1 protein, which method comprises
6 a step of treating an individual with an anti-sense
7 polynucleotide of any of Claims 32 to 34.

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9 36. A method according to Claim 35 in which the
10 cancer is selected from the group consisting of:
11 malignant astrocytomas; malignant melanoma secondary
12 tumours; and primary breast carcinomas.